ratio. In this embodiment, the dies **218**, **220**, **222**, **224**, and **226** may have a thickness of less than 50 μm.

[0042] In alternative embodiments, the manufacturer fabricates posts by first depositing a polymer mold on a substrate. The mold features post-shaped voids, as required. Next, metal posts are fabricated on the substrate using standard techniques for depositing metal such as electroforming, electroless plating, chemical vapor deposition, physical vapor deposition. Then, the polymer mold is removed, leaving behind only the solid metal posts.

[0043] FIG. **4**A is a cross sectional view of components used to form the multi-component module of FIG. **1** after a second stage of manufacture, according to an illustrative embodiment of the invention. Referring to FIGS. **3** and **4**A, in the second stage of manufacturing, after the posts **202**, **203**, **204**, **206**, **208**, and **209**, are formed, the manufacturer deposits a photoresist layer **322**. After patterning the photoresist layer **322** using standard photolithography techniques, the manufacturer deposits a metallization layer **320** covering the surface of the wafer **201**, the posts **202**, **203**, **204**, **206**, **208**, and **209**, and the die plinths **210** and **212**. Metallization layer **320** may be deposited by different methods, including electroforming, electroless plating, chemical vapor deposition, or physical vapor deposition.

[0044] In another embodiment, insulating and conducting layers are sequentially deposited and photopatterned to form interconnections between posts, as required, using standard photolithography techniques. In embodiments where the substrate is insulating, it may not be necessary to deposit an insulating layer.

[0045] FIG. **4**B is a cross sectional view of components used to form the multi-component module of FIG. **1** after a third stage of manufacture, according to an illustrative embodiment of the invention. Referring to FIGS. **4**A and **4**B, in the third stage of manufacturing, after depositing metallization layer **320**, the manufacturer removes the photoresist layer **322**, lifting off the metallization layer **320** everywhere except from the posts **202**, **203**, **204**, **206**, **208**, and **209**. The metallized posts **202**, **203**, **204**, **206**, **208**, and **209** will be used to form vias in a subsequent step in the process flow.

[0046] FIG. **5**A is a cross sectional view of components used to form the multi-component module of FIG. **1** after a fourth stage of manufacture, according to an illustrative embodiment of the invention. Referring to FIGS. **4**B and **5**A, in the fourth stage of manufacturing, the manufacturer deposits an adhesive layer **403** onto wafer **201**. Then, the manufacturer positions the temporary carrier **104** relative to the wafer **201** and brings the temporary carrier **104** and the wafer **201** into physical contact. The dies **226**, **224**, **222**, **220**, and **218** are transferred to the adhesive layer **403** on the wafer **201** from the temporary carrier **104**, on which dies **226**, **224**, **222**, **220**, and **218** were previously affixed face down, as was depicted in FIG. **2**.

[0047] FIG. **5**B is a cross sectional view of components used to form the multi-component module of FIG. **1** after a fifth stage of manufacture, according to an illustrative embodiment of the invention. Referring to FIGS. **5**A and **5**B, in the fifth stage of manufacturing, next, the temporary carrier **104** is removed from the dies **226**, **224**, **222**, **220**, and **218**, leaving them affixed to the wafer **201**. The adhesive layer is then removed from the wafer **201**, leaving only the layer affixing the dies **226**, **224**, **222**, **220**, and **218** to the wafer.

[0048] FIG. **6** is a cross sectional view of components used to form the multi-component module of FIG. **1** after a sixth stage of manufacture, according to an illustrative embodiment of the invention. Referring to FIGS. **5**B and **6**, in the sixth stage of manufacturing, after the dies are affixed to the wafer **201**, an encapsulating polymer **530** is flowed onto the wafer, at least partially encapsulating the dies **226**, **224**, **222**, **220**, and **218**. In one embodiment, the polymer **530** is screen printed. In another embodiment, the polymer **530** is stenciled. In yet another embodiment, the polymer **530** is spray-coated inside a dam area. Once the polymer **530** is deposited on the wafer **201**, it is cured.

[0049] FIG. **7** is a cross sectional view of components used to form the multi-component module of FIG. **1** after a seventh stage of manufacture, according to an illustrative embodiment of the invention. Referring to FIGS. **6** and **7**, in the seventh stage of manufacturing, the top of the wafer **201** is planarized so that the heights of the posts **202**, **203**, **204**, **206**, **208**, and **209** are equal to the height of the encapsulant **530** and encapsulated dies **226**, **224**, **222**, **220**, and **218**, thereby exposing metal contacts **709**-**718** of dies **226**, **224**, **222**, **220**, and **218**. In one embodiment, the wafer **201** is planarized by means of Chemical Mechanical Planarization (CMP).

[0050] FIG. **8** is a cross sectional view of components used to form the multi-component module of FIG. **1** after a eighth stage of manufacture, according to an illustrative embodiment of the invention. Referring to FIGS. **7** and **8**, in the eighth stage of manufacturing, the manufacturer then fabricates one or more dielectric layers, such as layers **704**, **706**, and **708**, on top of the wafer **201**. In one embodiment, the dielectric layers are patterned to form electrical interconnections **734** and **736** to the dies **226**, **224**, **222**, **220**, and **218** and to the posts **202**, **203**, **204**, **206**, **208**, and **209**, as required. In another embodiment, the dielectric layers are also patterned to form resistors, capacitors, inductors, and other functional components. The manufacturer then fabricates vias **722** and **732** to connect the interconnects **734** and **736** to the dies **226**, **224**, **222**, **220**, and **218**, as required.

[0051] FIG. **9** is a cross sectional view of components used to form the multi-component module of FIG. **1** after a ninth stage of manufacture, according to an illustrative embodiment of the invention. Referring to FIGS. **8** and **9**, in the ninth stage of manufacturing, after the interconnect layers are fabricated, the topside of the device **800** is attached to a temporary carrier **828** by means of an adhesive layer **830**. The backside of the device **800** is then planarized until the metallized layers on the posts **202**, **203**, **204**, **206**, **208**, and **209** are exposed. Preferably, CMP is used to planarize the device **800**. In various other embodiments, mechanical planarization, chemical planarization, plasma etching, or a combination is used to planarize the backside of the device **800**.

[0052] FIG. **10** is a cross sectional view of components used to form the multi-component module of FIG. **1** after a tenth stage of manufacture, according to an illustrative embodiment of the invention. Referring to FIGS. **9** and **10**, in the tenth stage of manufacturing, the manufacturer deposits a metal layer **914** on the surface of the device **800**. In the illustrative embodiment, metal layer **914** is depicted above posts **202**, **203**, **204**, **206**, **208**, and **209**. In other embodiments, the metal layer may be patterned and deposited to form interconnects on any portion of the surface of the device **800**, as required.